

REMARKS

In the Office Action, dated November 1, 2007, the Examiner rejects claims 1-3, 5, 7-8, 14-20, and 25-29 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,292,771 to Haug et al. (hereinafter "HAUG"); and objects to claims 4, 6, 9-13, and 21-24 as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims. Applicants respectfully traverse the rejection under 35 U.S.C. 102.¹

At the outset, Applicants note with appreciation the indication of allowable subject matter in claims 4, 6, 9-13, and 21-24.

Claims 1-3, 5, 7-8, 14-20, and 25-29 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by HAUG. Applicants respectfully traverse this rejection.

A proper rejection under 35 U.S.C. § 102 requires that a reference teach every aspect of the claimed invention. Any feature not directly taught must be inherently present. See M.P.E.P. § 2131. HAUG does not disclose the combination of features recited in Applicant's claims 1-3, 5, 7-8, 14-20, and 25-29.

For example, independent claim 1 is directed to a computer-implemented method of identifying whether a sequence is a semantic unit, that includes calculating a first value representing a coherence of terms in the sequence, calculating a second value representing variation of context in which the sequence occurs, determining whether the

¹ As Applicants' remarks with respect to the Examiner's rejections are sufficient to overcome these rejections, Applicants' silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, assertions as to dependent claims, etc.) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserve the right to analyze and dispute such assertions/requirements in the future.

sequence is a semantic unit based at least in part on the first and second values, and outputting an indication of whether the sequence is a semantic unit. HAUG does not disclose or suggest this combination of features.

For example, HAUG does not disclose or suggest calculating a first value representing a coherence of terms in a sequence (where it is to be identified whether the sequence is a semantic unit), as recited in claim 1. The Examiner relies on col. 6, line 54 to col. 7, line 9 of HAUG for allegedly disclosing this feature (Office Action, p. 2). Applicants disagree with the Examiner's interpretation of HAUG.

Col. 6, line 54 to col. 7, line 9 of HAUG disclose:

2--Spellchecker: The source code for the spellchecker is located in "newspell.lisp". The spellchecker is represented by step 302 in FIG. 3, and is presented in more detail in FIG. 4. A target word for which spelling is checked is identified in step 401. Since only words and phrases, which are known to the interpretive Bayesian network, can be used in semantic analysis, this module attempts to determine whether the candidate word might be a misspelling of any of the known word-level node states. (The word-level is the lowest level or "leaf" level of the Bayesian network, representing words in the phrase being analyzed. The root level of the network represents the concept of the phrase. A Bayesian network is illustrated in FIG. 5). For instance, we frequently see the string "anurisum", which is a misspelling of "aneurysm". In step 402, the spellchecker identifies a set of word-level states based on transformations of the target string into those states. For instance, "anurisum" is a misspelling of "aneurysm", given that it replaced the "eu" with "u", substituted "y" for "i", and replaced "sm" with "sum". The number and severity of the alterations required to transform one string into another provides an initial estimate of the likelihood that the one is a misspelling of the other.

This section of HAUG discloses a spellchecker that checks whether a candidate word might be a misspelling of any word stored in the leaf (word-level) of a Bayesian network. The spell checker identifies a set of word-level states based on transformations of the candidate word into those word-level states. The spellchecker disclosed by HAUG does not attempt to identify semantic units. The spellchecker disclosed by HAUG also does not calculate any values, or attempt to determine the coherence of terms in a sequence. Therefore, this section of HAUG cannot possibly disclose or suggest calculating a first value representing a coherence of terms in a sequence (where it is to be identified

whether the sequence is a semantic unit), as recited in claim 1.

HAUG also does not disclose or suggest calculating a second value representing variation of context in which a sequence occurs, as recited in claim 1. The Examiner relies on col. 7, lines 10-33 of HAUG for allegedly disclosing this feature (Office Action, p. 2). Applicants disagree with the Examiner's interpretation of HAUG.

Col. 7, lines 10-33 of HAUG disclose:

Next, the spellchecker binds other known words in the sentence to word-level states in the interpretive network (step 403), and tries to identify which of the candidate spellings of the target word makes sense in the context of these words (step 404). If the network has training cases including the words "brain aneurysm", priming the network with "brain" will yield a high probability for "aneurysm", and a low probability for other candidates such as "anaphylactic". This measure of semantic coherence, along with the degree and severity of the misspelling, can be used to rank and select among various candidate spellings. Finally, the target word is replaced by the best (most probable) candidate spelling (step 405).

3--Syntactic parser (step 303 of FIG. 3). The syntactic parser used in admitx is a fairly standard implementation of a context-free grammatical parser, with adaptations for transformations based on the notion of "movement". These ideas are described in detailed in James Allen's book "Natural Language Processing", which is incorporated herein by reference. Syntax is parsed in a manner constrained by ongoing analysis of semantic coherence of proposed syntactic relations within the parse, and of word-sense assignments to words within the parse. Source code for syntactic parsing is included in the Microfiche Appendix under the heading "syntactic parser".

This section of HAUG discloses that the spellchecker binds other known words in the sentence to the target word and tries to identify which of the candidate spellings makes sense in the context of these words. The target word is replaced with the most probable candidate spelling (thereby correcting the presumed spelling error). This section of HAUG also discloses a syntactic parser that parses syntax constrained by ongoing analysis of semantic coherence of proposed syntactic relation and of the word-sense assignments to words within the parse. The Examiner alleges that determining a replacement for misspelled words corresponds to calculating a second value representing variation of context in which the sequence occurs (Office Action, p. 2). The spellchecker of HAUG does not calculate the variation of context for the words that are being checked. The spellchecker of HAUG merely appends other words in the sentence to the word to

determine the best candidate spelling. Therefore, HAUG does not disclose or suggest calculating a second value representing variation of context in which a sequence occurs, as recited in claim 1.

Since HAUG does not disclose or suggest calculating a first value representing a coherence of terms in a sequence (where it is to be identified whether the sequence is a semantic unit), and HAUG does not disclose or suggest calculating a second value representing variation of context in which the sequence occurs, HAUG cannot disclose determining whether the sequence is a semantic unit based at least in part on the first and second values.

For at least the foregoing reasons, Applicants submit that claim 1 is not anticipated by HAUG. Accordingly, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. § 102(b) based on HAUG be reconsidered and withdrawn.

Claims 2-3, 5, 7-8, and 14-15 depend from claim 1. Therefore, these claims are not anticipated by HAUG for at least the reasons set forth above with respect to claim 1. Accordingly, Applicants respectfully request that the rejection of claim 2-3, 5, 7-8, and 14-15 under 35 U.S.C. § 102(b) based on HAUG be reconsidered and withdrawn.

Moreover, these claims are not anticipated by HAUG for reasons of their own.

For example, claim 3 recites that the coherence of terms in a sequence is calculated as a likelihood ratio that defines a probability of the sequence occurring in the collection of documents relative to parts of the sequence occurring. The Examiner relies on col. 6, line 54 to col. 7, line 9 of HAUG for allegedly disclosing this feature (Office Action, p. 3). Applicants disagree with the Examiner's interpretation of HAUG.

Col. 6 line 54 to col. 7, line 9 of HAUG were reproduced above. This section of

HAUG discloses a spellchecker that checks whether a candidate word might be a misspelling of any word stored in the leaf (word-level) of a Bayesian network. The spell checker identifies a set of word-level states based on transformations of the candidate word into those word-level states. This section of HAUG does not disclose or suggest likelihood ratios. This section of HAUG does not even disclose or suggest a collection of documents. Therefore, this section of HAUG cannot disclose or suggest that the coherence of terms in a sequence is calculated as a likelihood ratio that defines a probability of the sequence occurring in the collection of documents relative to parts of the sequence occurring, as recited in claim 3.

For at least these additional reasons, Applicants submit that claim 3 is not anticipated by HAUG.

Claim 8 recites that a variation of context in which a sequence occurs is calculated as a measure of entropy of the context of the sequence. The Examiner relies on col. 7, lines 9-33 of HAUG for allegedly disclosing this feature (Office Action, p. 3). Applicants disagree with the Examiner's interpretation of HAUG.

Col. 7, lines 9-33 of HAUG were reproduced above. This section of HAUG discloses that the spellchecker binds other known words in the sentence to the target word and tries to identify which of the candidate spellings makes sense in the context of these words. The target word is replaced with the most probable candidate spelling (thereby correcting the presumed spelling error). This section of HAUG also discloses a syntactic parser that parses syntax constrained by ongoing analysis of semantic coherence of proposed syntactic relation and of the word-sense assignments to words within the parse. This section of HAUG does not disclose or suggest a measure of entropy. Therefore, this

section of HAUG cannot disclose or suggest that a variation of context in which a sequence occurs is calculated as a measure of entropy of the context of the sequence, as recited in claim 8.

Independent claims 16, 28, and 29 recite features similar to, yet possibly of different scope than, features recited above with respect to claim 1. Therefore, these claims are not anticipated by HAUG for at least the reasons set forth above with respect to claim 1. Accordingly, Applicants respectfully request that the rejection of claims 16 and 28-29 under 35 U.S.C. § 102(b) based on HAUG be reconsidered and withdrawn.

Claims 17-20 and 25-27 depend from claim 16. Therefore, these claims are not anticipated by HAUG for at least the reasons set forth above with respect to claim 16. Accordingly, Applicants respectfully request that the rejection of claims 17-20 and 25-27 under 35 U.S.C. § 102(b) based on HAUG be reconsidered and withdrawn.

Moreover, these claims are not anticipated by HAUG for reasons of their own.

For example, claim 19 recites features similar to, yet possibly of different scope than, features recited above with respect to claim 3. Therefore, this claim is not anticipated by HAUG for at least reasons similar to the additional reasons set forth above with respect to claim 3.

Claim 20 recites features similar to, yet possibly of different scope than, features recited above with respect to claim 8. Therefore, this claim is not anticipated by HAUG for at least reasons similar to the additional reasons set forth above with respect to claim 8.

In view of the foregoing remarks, Applicants respectfully request the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

While the present application is believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise that could be eliminated through discussions with Applicants' representative, then the Examiner is invited to contact the undersigned by telephone to expedite prosecution of the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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